Problems with the FIB PCB – Spring 2010

- Z1 – Zener diode for the 30V indicator
  - The Silkscreen is backwards on the board
- Q5 – Control for safety relay
  - Silkscreen is backward, turn part 180 degrees and it will be correct
- U4 – 5V shunt regulator for ADC
  - The pin out for this part is incorrect on the board, look at schematic and part datasheet to get correct layout
- Q1-Q4 – H-Bridge IGBTs
  - The through holes for these parts are slightly too small, make larger when board is made again
  - Offset these so the heatsinks like up nicely
- R36 – Bleeder Resistor
  - Resistor does not fit well here. It was placed on the back of the board this year, but can be redone next year
- C? – HV capacitors
  - Added smaller capacitors for better high frequency performance, currently wherever they fit
  - Make provisions on next board for these
- MOV – Transient suppressor
  - Make provisions for this on the next board, currently on the bottom
- QC1-QC4 – HV connections
  - Make sure these are not under the heatsinks and can be accessed easily
- Heatsinks
  - Make provisions to have a mounting screw on the board for the heatsinks, we drilled our own holes for them
  - Make sure screws for mounting IGBTs to heatsinks are easy to access
- Q6 – 30V Indicator IGBT
  - This circuit could be better designed, dissipated a lot of power
  - Make sure this is out of the way of the heatsink, or make a pad on the board to mount this part, then screw to the board
- T1 – Feedback transformer
  - See if this can be moved out of the way of screwing the IGBTs to the heatsinks,
- U1 – Microcontroller
  - Pin 1 of the microcontroller is tied to ground on the board, but should be left floating. The pin tied low will put the chip into serial programming mode, which will cause the code not to run

Other Notes: Make sure parts that might be socketed are not under heatsinks, these are very difficult to get into sockets with heatsinks in place